

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-12. (Canceled).

13. (Currently Amended) An image filling method comprising the steps of:

extracting color information of each pixel of a line drawing to be filled, wherein said line drawing to be filled includes a colored line which is a boundary line dividing said line drawing to be filled into regions, a color of the boundary line specifying a color used for filling the boundary line;

extracting boundary line information representing whether said each pixel is on the boundary line or not by using said color information;

filling said line drawing except the boundary line by using said boundary line information; and

filling said colored line by using said boundary line information, said step of filling said colored line including the steps of:

when a pointing device is in a first state and boundary line information of coordinates at the pointing device represents a region other than the boundary line, obtaining color information of said coordinates at the pointing device; and

when the pointing device is in a second state and boundary line information of coordinates at the pointing device represents the boundary line, providing said obtained color information to said coordinates at the pointing device.

14. (Canceled).

15. (Original) The image filling method as claimed in claim 13, said step of extracting boundary line information comprising the steps of:

extracting color information of each pixel by scanning said line drawing to be filled;

comparing R, G, B values of said color information with predetermined R, G, B thresholds;
and
setting codes according to the kind of said colored line and regions other than said boundary line.

16. (Canceled).

17. (Original) The image filling method as claimed in claim 13, said step of filling said line drawing comprising the step of:

providing specified color information to a region which includes coordinates when said coordinates are within said line drawing to be filled and said boundary line information of said coordinates represents a region other than the boundary line.

18-20. (Canceled).

21. (Original) An image filling method comprising the steps of:

generating color specifying information including predetermined colors and corresponding names;

displaying said color specifying information at coordinates when a user specifies a closed region by pointing said coordinates with a pointing device; and

filling said closed region with a color specified by the user from said displayed color specifying information.

22. (Canceled).

23. (Original) An image filling method comprising the steps of:

generating color specifying information including predetermined colors and corresponding names according to an instruction by a user;

storing generated color specifying information in a storage device;

reading a line drawing to be filled from said storage device;

displaying said line drawing to be filled on a display;

reading said color specifying information from said storage device;

displaying said color specifying information at coordinates specified by a pointing device on the display by the user;

filling a closed region which includes said coordinates with a color specified by the pointing device from said color specifying information; and

storing said line drawing which is filled in the storage device.

24. (Canceled).

25. (Original) The image filling method as claimed in claim 23, said step of filling a closed region comprising the steps of:

specifying a point in said closed region to be filled on the display with the pointing device, and obtaining coordinates of said point;

judging whether said point of said coordinates is on said line drawing to be filled;

displaying said color specifying information at said coordinates wherein said color specifying information is overlaid on said line drawing to be filled if said point of said coordinates is on said line drawing to be filled;

specifying a color in said color specifying information which is displayed with the pointing device;

obtaining a color value which is specified from said color specifying information;

filling said closed region including said coordinates with said color value;

deleting said color specifying information from the display; and

repeating these procedures until filling of said line drawing is completed.

26. (Canceled).

27. (Original) The image filling method as claimed in claim 25, said step of filling comprising the steps of:

saving said coordinates in working coordinates;

changing a color of said working coordinates into said color value when said working coordinates are within said line drawing to be filled and a color of said coordinates does not a boundary line color; and

changing colors of other coordinates around said coordinates into said color value.

28. (Currently Amended) An image processing method comprising the steps of:

inputting image data;

searching said image data for extracting a small region smaller than or equal to a predetermined size; and

outputting a list of said small regions;

wherein said image data is one of unfilled line drawing data and line drawing data which is filled by one of a four connected pixel seed fill algorithm and a scan line seed fill algorithm.

29. (Canceled).

30. (Currently Amended) An image processing method comprising the steps of:

inputting image data;

searching said image data for extracting a small region smaller than or equal to a predetermined size;

providing a mark to said small region; and

displaying said mark wherein said mark is overlaid on said image data;

wherein said image data is one of unfilled line drawing data and line drawing data which is filled by one of a four connected pixel seed fill algorithm and a scan line seed fill algorithm.

31. (Canceled).

32. (Currently Amended) An image processing method comprising the steps of:

inputting image data;

searching said image data for extracting a small region smaller than or equal to a predetermined size;

providing a mark to said small region;

displaying said mark wherein said mark is overlaid on said image data; and

asking an user about processing for said small region such that processing specified by the user is performed;

wherein said image data is one of an unfilled line drawing data and a line drawing data which is filled by one of a four connected pixel seed fill algorithm and a scan line seed fill algorithm.

33-36. (Canceled).

37. (Currently Amended) An image filling apparatus comprising the steps of:

a storage device for storing line drawings which includes a colored line which is a boundary line dividing said line drawing into regions, a color of the boundary line specifying a color used for filling the boundary line;

a part for reading a line drawing to be filled which includes said colored line from said storage device;

a part for extracting color information of each pixel of said line drawing to be filled,

a part for extracting boundary line information representing whether said pixel is on the boundary line or not by using said color information;

a part for filling said line drawing except the boundary line by using said boundary line information; and

a part for filling said colored line by using said boundary line information, said part of filling said colored line including:

a part for obtaining color information of coordinates at a pointing device when the pointing device is in a first state and a boundary line information of said coordinates at the pointing device represents a region other than the boundary line, and

a part for providing said obtained color information to coordinates at the pointing device when the pointing device is in a second state and boundary line information of said coordinates at the pointing device represents the boundary line.

38. (Canceled).

39. (Original) The image filling apparatus as claimed in claim 37, said part for extracting boundary line information comprising:

a part for extracting color information of each pixel by scanning said line drawing to be filled;

a part for comparing R, G, B values of said color information with predetermined R, G, B thresholds; and

a part for setting codes according to the kind of said colored line and regions other than said boundary line.

40. (Canceled).

41. (Original) The image filling apparatus as claimed in claim 37, said part of filling said line drawing comprising:

- a part for providing specified color information to a region which includes coordinates when said coordinates are within said line drawing to be filled and said boundary line information of said coordinates represents a region other than the boundary line.

42-44. (Canceled).

45. (Original) An image filling apparatus comprising:

- a part for generating color specifying information including predetermined colors and corresponding names according to an instruction by a user;
- a storage device;
- a part for storing generated color specifying information in said storage device;
- a part for reading a line drawing to be filled from said storage device;
- a part for displaying said line drawing to be filled on a display;
- a part for reading said color specifying information from said storage device;
- a part for displaying said color specifying information at coordinates specified by a pointing device on the display by the user;
- a part for filling a closed region which includes said coordinates with a color specified by the pointing device from said color specifying information; and
- a part for storing said line drawing which is filled in the storage device.

46. (Canceled).

47. (Original) The image filling apparatus as claimed in claim 45, said part for filling a closed region comprising:

- a part for specifying a point in said closed region to be filled on the display with the pointing device, and obtaining coordinates of said point;
- a part for judging whether said coordinates are on said line drawing to be filled;

a part for displaying said color specifying information at said coordinates wherein said color specifying information is overlaid on said line drawing to be filled if said coordinates are on said line drawing to be filled;

a part for specifying a color in said color specifying information with the pointing device;

a part for obtaining a color value which is specified in said color specifying information;

a part for filling said closed region including said coordinates with said color value;

a part for deleting said color specifying information from the display; and

a part for repeating these procedures until filling of said line drawing is completed.

48. (Canceled).

49. (Original) The image filling apparatus as claimed in claim 47, said part of filling comprising:

a part for saving said coordinates in working coordinates;

a part for changing a color of said working coordinates into said color value when said working coordinates are within said line drawing to be filled and a color of said coordinates does not a boundary line color; and

a part for changing colors of other coordinates around said coordinates into said color value.

50. (Currently Amended) An image processing apparatus comprising:

a part for inputting image data;

a part for searching said image data for extracting a small region smaller than or equal to a predetermined size; and

a part for outputting a list of said small regions;

wherein said image data is one of unfilled line drawing data and line drawing data which is filled by one of a four connected pixel seed fill algorithm and a scan line seed fill algorithm.

51. (Canceled).

52. (Currently Amended) An image processing apparatus comprising:

a part for inputting image data;

a part for searching said image data for extracting a small region smaller than or equal to a predetermined size;

a part for providing a mark to said small region; and
a part for displaying said mark wherein said mark is overlaid on said image data,
wherein said image data is one of unfilled line drawing data and line drawing data which is filled by one of four connected pixel seed fill algorithm and a scan line seed fill algorithm.

53. (Canceled).

54. (Currently Amended) An image processing apparatus comprising:

a part for inputting image data;
a part for searching said image data for extracting a small region smaller than or equal to a predetermined size;
a part for providing a mark to said small region;
a part for displaying said mark wherein said mark is overlaid on said image data; and
a part for asking a user about processing for said small region such that processing specified by the user is performed;
wherein said image data is one of unfilled line drawing data and line drawing data which is filled by one of a four connected pixel seed fill algorithm and a scan line seed fill algorithm.

55-58. (Canceled).

59. (Currently Amended) A computer readable medium storing program code for causing a computer to color images, said computer readable medium comprising:

program code means for extracting color information of each pixel of a line drawing to be filled, wherein said line drawing to be filled includes a colored line which is a boundary line dividing said line drawing to be filled into regions, a color of the boundary line specifying a color used for filling the boundary line;

program code means for extracting boundary line information representing whether said each pixel is on the boundary line or not by using said color information;

program code means for filling said line drawing except the boundary line by using said boundary line information; and

program code means for filling said colored line by using said boundary line information,
said program code means for filling said colored line including:

program code means for obtaining color information of coordinates at a pointing device when the pointing device is in a first state and boundary line information of said coordinates at the pointing device represents a region other than the boundary line; and

program code means for providing said obtained color information to coordinates at the pointing device when the pointing device is in a second state and boundary line information of said coordinates at the pointing device represents the boundary line.

60. (Canceled).

61. (Original) The computer readable medium as claimed in claim 59, said program code means for extracting boundary line information comprising:

program code means for extracting color information of each pixel by scanning said line drawing to be filled;

program code means for comparing R, G, B values of said color information with predetermined R, G, B thresholds; and

program code means for setting codes according to the kind of said colored line and regions other than said boundary line.

62. (Canceled).

63. (Original) The computer readable medium as claimed in claim 59, said program code means for filling said line drawing comprising:

program code means for providing specified color information to a region which includes coordinates when said coordinates are within said line drawing to be filled and said boundary line information of said coordinates represents a region other than the boundary line.

64-66. (Canceled).

67. (Original) A computer readable medium storing program code for causing a computer to color images, said computer readable medium comprising:

program code means for generating color specifying information including predetermined colors and corresponding names according to an instruction by a user;

program code means for storing generated color specifying information in a storage device;

program code means for reading a line drawing to be filled from said storage device;

program code means for displaying said line drawing to be filled on a display;

program code means for reading said color specifying information from said storage device;

program code means for displaying said color specifying information at coordinates specified by a pointing device on the display by the user;

program code means for filling a closed region which includes said coordinates with a color specified by the pointing device from said color specifying information; and

program code means for storing said line drawing which is filled in the storage device.

68. (Canceled).

69. (Original) The computer readable medium as claimed in claim 67, said program code means for filling a closed region comprising:

program code means for specifying a point in said closed region to be filled on the display with the pointing device, and obtaining coordinates of said point;

program code means for judging whether said coordinates are on said line drawing to be filled;

program code means for displaying said color specifying information at said coordinates wherein said color specifying information is overlaid on said line drawing to be filled if said coordinates are on said line drawing to be filled;

program code means for specifying a color in said color specifying information with the pointing device;

program code means for obtaining a color value which is specified in said color specifying information;

program code means for filling said closed region including said coordinates with said color value;

program code means for deleting said color specifying information from the display; and

program code means for repeating these procedures until filling of said line drawing is completed.

70. (Canceled).

71. (Original) The computer readable medium as claimed in claim 69, said program code means for filling comprising:

program code means for saving said coordinates in working coordinates;

program code means for changing a color of said working coordinates into said color value when said working coordinates are within said line drawing to be filled and a color of said coordinates does not a boundary line color; and

program code means for changing colors of other coordinates around said coordinates into said color value.

72. (Currently Amended) A computer readable medium storing program code for causing a computer to process images, said computer readable medium comprising:

program code means for inputting image data;

program code means for searching said image data for extracting a small region smaller than or equal to a predetermined size; and

program code means for outputting a list of said small regions;

wherein said image data is one of unfilled line drawing data and line drawing data which is filled by one of a four connected pixel seed fill algorithm and a scan line seed fill algorithm.

73. (Canceled).

74. (Currently Amended) A computer readable medium storing program code for causing a computer to process images, said computer readable medium comprising:

program code means for inputting image data;

program code means for searching said image data for extracting a small region smaller than or equal to a predetermined size;

program code means for providing a mark to said small region; and

program code means for displaying said mark wherein said mark is overlaid on said image data, wherein said image data is one of unfilled line drawing data and line drawing data which is filled by one of a four connected pixel seed fill algorithm and a scan line seed fill algorithm.

75. (Canceled).

76. (Currently Amended) A computer readable medium storing program code for causing a computer to process images, said computer readable medium comprising:

program code means for inputting image data;

program code means for searching said image data for extracting a small region smaller than or equal to a predetermined size;

program code means for providing a mark to said small region;

program code means for displaying said mark wherein said mark is overlaid on said image data; and

program code means for asking an user about processing for said small region such that processing specified by the user is performed;

wherein said image data is one of unfilled line drawing data and line drawing data which is filled by one of a four connected pixel seed fill algorithm and a scan line seed fill algorithm.

77. (Canceled).